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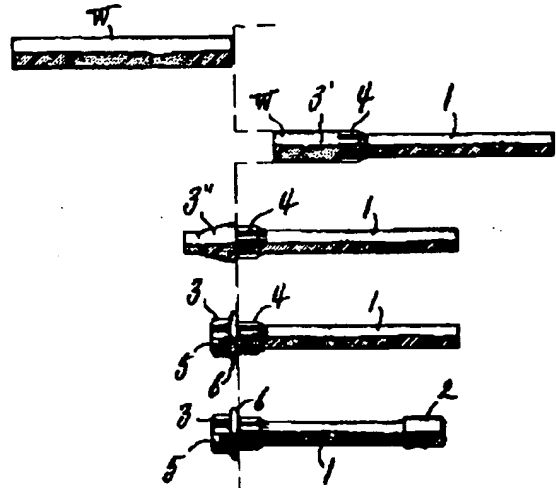
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TITLE : METHOD AND APPARATUS FOR
MANUFACTURING BOLT HAVING
BULGE AT TIP



ABSTRACT : PURPOSE: To manufacture tension bolts of high quality at high productivity by forming a bulge of larger diameter than the shank at the tip of a headed bolt drawn by upsetting.

CONSTITUTION: In manufacturing a tension bolt that forms a bulge larger in diameter than the outer diameter of a shank necessary for rolling of a screw at the tip of the shank, a round steel bar W cut to a fixed length is formed to a shape consisting of a thin shank 1, a head 3' and a spline 4 by a punch and a die. The head 3' is formed by upsetting to a conical head 3". Further, a head 3 having square periphery, a square hole 5 and a flange part 6 are upset at the same time and a square headed bolt that has the clearance of spline on the shank under the neck is formed by upsetting. This bolt blank is carried by a chuck immediately before the die of the final step, and the protruding part from the chuck is bulged by driving to the punch, and the final forming is made by bulging it larger than the outer diameter of the shank.

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